

**RECENT INVENTIONS.**

Mr. Robert Hutton, of Holyoke, Mass., has patented a tension regulator for paper drying and other machines, such as printing presses, wall paper, printing machines, calico calendering machines, cloth-stretching machines, etc., whereby the tension on the material is kept uniform. The invention consists in a loose driving pulley, having its hub formed with inclines, and loose collars drawn to the hub by springs, combined with a winding shaft having fixed collars pressed to the loose collars by a screw, whereby the shaft is turned by the pulley, the friction being equalized by the equalization of the strain between the springs and the material being wound.

Mr. George W. Kaufman, of London, Ohio, has patented an improved wrench for use in screwing on or off the nuts of bolts in carriage wheels. The invention consists in a frame carrying a socketed shaft for receiving the wrench head, and a second shaft formed to receive a brace or crank, the shafts being connected by gearing, and the frame fitted with clamps for its attachment to the wheel.

Mr. Robert A. Bendall, of Cohoes, N. Y., has patented a machine for making three-ply roofing felt, which operates to insert a layer of plastic slate between two layers of paper, pressing the three-ply or thicknesses into a compact felt, and winding the felt into a roll. The material so prepared can be laid upon a roof, all that is necessary to finish the work being an exterior coating or layer of plastic slate.

Mr. John Butler, of New York city, has patented an electro-magnetic apparatus for medical use. The apparatus has one or both electrodes fitted as a roller or rollers for use in the manipulation of the muscles, so that magnetic and mechanical treatment can be combined in a single operation. The roller is hung on the permanent magnet and geared to give revolution. The armature and the permanent magnet serve as a handle by which the apparatus can be operated.

Mr. Jacob Pluess, of Prairie du Sac, Wis., has patented an improved boot and shoe constructed to prevent its running over to one side, and to prevent the ripping of seams caused by bending the boot or shoe at the shank. The boot or shoe is provided with a strengthening strip of leather interposed between the outer edge portion of the inner sole and the upper, which overlaps the stiffening strip, and is fastened to the inner sole, thereby forming a support for the heel ball and shank portions.

Mr. Robert K. Slaughter, of New York city, has patented an improvement in window shades which is designed to secure all the useful effects of opaque shades with the advantages of semi-transparent shades. He combines the two classes of materials, inserting the semi-transparent material into the opaque, and ornamenting the semi-transparent material, whereby the ornamentation is visible whether the room be exteriorly or interiorly illuminated, and also securing both cheapness and artistic effect.

**A Simple Photophone.**

The photophone has been reproduced in an exceedingly simple form by Mr. Shelford Bidwell. The transmitter is a disk of thin microscopic glass silvered on its anterior surface, and placed in front of a tube by which the voice is conveyed to it so as to excite vibration. The lime, or electric light, is reflected from this mirror through a convex lens, so as to render the rays parallel; these being received on a second lens at some distance, and again concentrated on a selenium receiver. This is the most important part of the apparatus. It consists of a slip of mica, two and a quarter inches long and three-quarters inch broad, round which is wound No. 40 copper wire in the form of a flat screw, with a pitch of one-sixteenth of an inch. The ends are fixed through holes drilled in the mica. A second wire is then wound beside but not touching the first. A few grains of vitreous selenium are melted and dropped on the surface of the mica, being afterward evenly spread by means of another slip of mica. The temperature should be just above the fusing point of selenium. It is then allowed to cool. It is next annealed for several hours and allowed to cool very slowly. The terminals of this cell are joined up with a battery of eleven Leclanché elements and a pair of Bell telephones wound with finer wire than usual, in larger quantity than that required for ordinary telephonic communication. The voice is very fairly conveyed across a space of ten feet and into a neighboring room by this simple form of apparatus.

**The Evening Sky.**

The Providence Journal, in a recent issue, says: The planetary aspect of the evening sky has not been so beautiful for many years, and the show is now approaching its culmination. The heavens were glorious to behold during the evenings of the last week. The moon, commencing with the 2d, paid her respects on successive evenings to Venus, Jupiter, and Mars, and, excepting on one evening, there were no clouds to mar the exceptional beauty of the scene. No observers could lift their eyes to the golden mysteries enshrined above without being impressed with the exceeding loveliness of the shining throng. Sunday evening, however, carried off the palm for the remarkable clearness of the sky, the purity of the atmosphere, and the unruffled serenity of the elemental conditions. The night was one dear to the heart of astronomers. At 6:30 the celestial arch presented a charming picture, the trio of planets glowing in the west; the moon, one day past the first quarter, shining from the zenith with the clustering Pleiades not far away, Orion with his glittering brilliants filling the eastern sky with sparkling light, and the matchless Sirius shining

in the southeast. The telescopic view of separate portions of the picture was superb beyond expression. Venus, when the far-seeing eye of the instrument was turned upon her, was an object of dazzling brightness, nearly the size of the moon, her disk half enlightened, as our luminary looks at her last quarter. Jupiter was splendidly brilliant, his belts radiant in prismatic hues, his great red spot visible, and his moons attending their giant chief, two on one side and two on the other. Saturn's peerless ringed orb, with his belts and three moons, was the next study. The telescope was then turned to the moon, a portion of the terminator or boundary between the bright and shaded portions being brought into the field. With a high power she seemed so near that one by reaching out might almost touch her surface. There is nothing in astronomy more impressive than the utter desolation and death that reign on the chalk-like surface of this dead planet. There are no clouds to diversify the sky, no twilight to prolong the day, no sound to break the eternal silence. Immense craters, deep fissures, rounded hillocks, and the scars of mighty commotions, are all that remain of regions that were probably habitable like the earth in times gone by. The view on the terminator was the most interesting. Instead of the unbroken line of light that marks its appearance to the naked eye, the moon's rough edge was formed of branching horns of radiant light, like the antlers of a stag or huge formations of coral. These were the summits of lunar mountains, lighted up by the sun, which was just rising to this part of the moon. The bright mountain peaks were weird and wonderful, as well as beautiful, though their only admirers were observers 240,000 miles away.

**A Sacrifice in a Study.**

Commenting on the recent death and attributes of Dr. Edward Washburn, one of New York's most distinguished scholars and able divines, the Philadelphia Ledger thus alludes to the probable cause of his death:

In the midst of his studies for the help of humanity—in his study room itself, it is said, was the poisonous malaria that struck down the scholar and the student of human problems. His wasting disease of many weeks' duration is set down to malaria from imperfect sewerage under the room in which he spent many hours of work daily. It seems like a grim satire on human limitations that, while the saving sciences and humanity were his especial study, the neglect, the ignorance, or the gross stupidity of housebuilders was preparing a poison which sent him to the grave. Here, then, in the midst of the knowledge and cultivation and wealth of New York, were conditions, it seems, equal in effect to that of any squalid tenement house or fever-plagued town in the East, where Dr. Washburn traveled years ago. There was the subtle poison in the very atmosphere when this active organizer was planning to purify the plague places of the city. Whatever there was of latent weakness or constitutional defect, this wretched sewer stuff acts promptly or slowly, but always surely to bring out, and strike down with it just as surely the scientist as the simple little child. How many other students, it might well to ask, are burning the midnight oil or spending the daylight over dark and hidden poison traps? How many sermons are written, or legal arguments laid out, or scientific discoveries worked out, or even disease studied out, in the midst of surroundings that are sarcastic enough commenters upon the ignorance of all these workers and scholars and scientific inquirers? When a man's foes are those of his own household, in pipe and drain, it is time to begin to look at home. In these days "black care" does not ride behind the successful man, but black death may sit behind the desk or lie in wait in the wainscoting to confound a wealth and knowledge with the problem of the sewer.

**New Remedy for Pruritus.**

Physicians are often sorely puzzled to give relief to the symptom of itching which so frequently forms a prominent feature in certain skin diseases, and the most varied local measures are often used with the result of aggravating the local irritation. The best of internal remedies used for allaying this distressing condition is a limited one, and from it chloral and bromide of potassium stand out almost alone; but the objections to the continued use of these are too obvious to require mention. In searching for a vegetable neurotic which would probably have the desired effect, Dr. L. D. Bulkley says, in the New York Medical Journal, that he concluded that gelsemium, from the relief that it affords in certain cases of neuralgia, etc., might possibly act as a nervous sedative to the skin. This, on experiment, turned out to be true, and now after prescribing it with considerable success for two or three years, mainly on adults suffering from eczema, he has prepared to advise it as an adjuvant for the relief of itching in certain cases. He has used the tincture of the drug, giving it in ten drop doses to begin with, and, when relief was obtained, repeating the remedy in twelve or fifteen drop doses at intervals of half an hour, until relief was obtained or until a drachm or so had been taken in 24 hours.

**Paper and Paper Pulp from Salt Hay.**

It has probably not been generally known among paper-makers that the Paper World, that the grass ordinarily grown upon the low, marshy lands bordering upon salt water and frequently overflowed by it, furnishes a most excellent material for paper. This grass grows in great plenty, and can be had for a comparatively low price, and contains nearly as much useful fiber to a ton as straw. It is very

easily digested, and can be reduced in a very short time, two hours being quite sufficient. The brown pulp as discharged from the digester makes a very superior quality of hardware paper, and a trifling expense only is incurred in bringing the brown pulp up to a manila color, and even a fair quality of white paper may be produced from it. This stock when made into paper board produces an article of superior strength and rigidity, and one not liable to fracture in bending. The yield of useful pulp from a ton of hay is about nine hundred pounds, and the cost for caustic, we learn from the same authority, is very moderate.

**The Contagiousness of Glanders.**

Glanders is now so prevalent throughout the country, and exists to such an alarming extent in London, that any additional evidence we can obtain as to the manner in which it is propagated must be of value. It is not, perhaps, going beyond the mark to assert that not one-half of the cases of this horrible and fatal disorder are reported to the government; nor is it the less true that proper sanitary measures are very seldom adopted for its suppression. And it is greatly to be feared that the malady is mistaken for other diseased conditions, especially pyæmia, and that sick animals are allowed to live for weeks or months among others, to the great danger of not only these, but their human attendants. It has long been known that glanders is an inoculable disease, and that it could also be produced by transfusing blood from a diseased to a healthy horse or ass, as well as by introducing the virus contained in the nasal discharge into the stomach. It is possible that all the secretions and excretions are more or less infective, the peculiar muco-purulent fluid thrown off by the Schneiderian membrane probably being most active. This discharge has been blamed as rendering the public watering troughs a source of danger, the fluid passing into the water when glandered horses are allowed to quench their thirst at these valuable conveniences. It has been objected to this notion, that the discharge, being heavier than water, falls to the bottom of the trough, and, not being readily diffusible, is not likely to be swallowed by other horses watered there. This argument had a certain amount of plausibility, and the friends of the public water trough movement availed themselves of it when the troughs were accused of being largely instrumental in disseminating the disease.

From a note presented to the Académie des Sciences by Professor Galtier, of the Lyons Veterinary School, it appears that he has been successful in transmitting the disease to an ass, by the hypodermic injection of saliva from a glandered horse. We know that the virulent germs find admission not only through a wound or abrasion, or a thin mucous membrane, such as the conjunctiva, but also by the digestive organs. Saliva readily mixes with water, and those who have watched horses drinking will have remarked that some of the water taken into the mouth escapes by the commissures of the lips and falls back into the trough or bucket; and when drinking has been completed, a certain quantity which has not been swallowed is also returned; so that a glandered horse may largely contaminate the water in a trough with his saliva. Not only this, but when horses drink greedily, it often happens that a portion of the water is returned through the nostrils; so that the nasal, as well as the salivary secretion, may find its way into the mass of water which healthy horses subsequently swallow.

Galtier's experiments also go to show that the glander virus loses its activity when the matters which contain it, whether liquids or tissues, have been completely desiccated for fifteen days. Thorough ventilation of buildings which have been tenanted by glandered horses is, therefore, a very effective means of purifying them.

The diagnosis of glanders is sometimes very difficult, if not impossible, without having recourse to test inoculation; and the animal usually inoculated is the ass, that creature being not only less costly for this purpose, but also more easily infected than the equine species. It is still costly, however, and being large and somewhat expensive to keep during the experiment, other more convenient animals have been proposed for substitution. The rabbit is one of these, but, as M. Colin has shown in the experiments which we described a fortnight ago, it cannot be relied upon as a test animal.—Lancet.

**Corn Stalk Sugar.**

At a recent meeting of the American Agricultural Association in this city, Dr. Peter Collier, chemist of the Department of Agriculture at Washington, stated that during the past year there have been examinations made of 38 varieties of sorghum grown in and received from 14 different States, and from 9 varieties of Indian corn. The results of analyses made, 1,318 in all of the sorghums, showed them to yield, on an average, 1,662 pounds of available sugar. From 4 of these varieties the sugar was extracted in quantity and at a rate of fully 2,000 pounds per acre. As to the corn stalks the results were most satisfactory, but the experiments were not so numerous as with sorghum. An average of 26 analyses of the 9 varieties examined showed them to contain in their juice an amount of sugar greater in quantity than the average of the best 30 specimens of the 60 specimens of sugar beets grown in different parts of the country. After a large crop of ripe corn had been gathered, the stalks yielded at the rate of over 900 pounds of sugar to the acre, and there appears no reason to doubt that this result could be obtained upon a large scale.